

UPPER MOLAR ALVEOLAR PATTERNS OF SOME MURIDAE IN QUEENSLAND AND PAPUA NEW GUINEA

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SUMMARY

The upper molar alveolar patterns of 33 species in 16 genera of Muridae are illustrated. The eight patterns recognized are each related to a genus or a group of genera; the taxonomic value of the patterns is limited because of inconsistent, though infrequent, variation. Although patterns do not distinguish among native *Rattus* species, they provide a useful additional criterion for separating *Melomys cervinipes* (Gould) from *Melomys littoralis* (Lönnerberg).

Biological entities within the Muridae remain ill-defined despite a voluminous literature in the medical, agricultural and pure zoological fields. During long-term studies of *Rattus* and *Melomys* in Queensland, attention was given to the taxonomic value of alveolar patterns in the maxillae. Jones (1922) described the alveolar patterns of five species of murids from South Australia, and Ellerman (1942) discussed the roots of M¹ of Australasian Muridae. With the expansion of field work throughout Queensland to Cape York Peninsula, exploratory efforts were made with other genera in Queensland and some species from Papua New Guinea.

MATERIAL EXAMINED

Rattus and *Melomys* specimens were available in numbers (see Table 1) from recent field collections throughout the State and from consequent breeding colonies. The collections of the Department of Forestry and the Queensland Museum (QM) were examined also. Skulls were selected from the available material. *Hydromys* specimens were readily available; skulls of *Conilurus albipes* (Lichtenstein) were used because a Queensland specimen of *C. penicillatus* (Gould) was not available.

The Australian Museum (AM) provided a skull of *Xeromys myoides* Thomas from Mackay, Q., and a skull of *Melomys lutillus* (Thomas) from Papua New Guinea. The University of Queensland supplied specimens of *M. rufescens* (Alston) (type species), *Pogonomelomys sevia* (Tate and Archbold), and *Pogonomys mollipilosus* Peters and

Doria, also from Papua New Guinea. All other specimens, except those from recent field collections presently retained by the Queensland National Parks and Wildlife Service, Brisbane, are in the Queensland Museum.

Nomenclature is based on Iredale and Troughton (1934).

ALVEOLAR PATTERNS

Alveolar patterns of the 33 species examined are shown in Plates 61-2. The distribution of alveoli among molars falls into eight patterns which, with related genera, are set out in Table 1. *Melomys* (Group A) consists of *M. lutillus*, *M. littoralis*, and *M. australis*; *Melomys* (Group D) of *M. cervinipes*, *M. rufescens*, *M. rubicola*, and *Melomys* sp. The patterns for *Rattus*, *Hydromys*, *Mus*, and *Notomys* agree with those of Jones (1922).

The plates also illustrate variations seen in the patterns recorded in Table 1. The irregular shape of a large alveolus is frequently the result of a union with an adjacent small one; this becomes apparent when the third molar is fully erupted and a permanent pattern is discernible, as is illustrated by Plate 62Da. Occasionally an alveolus of comparatively small size and variable location may occur (Plate 61E); such aberrations are rare, being present for example in less than 1% of the series of *M. cervinipes*.

The taxonomic value of the alveolar patterns is limited because of the inconsistent variation that occurs infrequently within these. This study thus did not assist in distinguishing species of native

Rattus, but the occurrence of two patterns in *Melomys* (Table 1A and D) provides a morphological character, independent of age and of measurements, which is a useful additional criterion for separating *M. cervinipes* and *M. littoralis*.

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TABLE 1: MOLAR ALVEOLAR PATTERNS AMONG 16 MURID GENERA

Pattern	Distribution of molar alveoli			Genus (specimens examined)
	M ¹	M ²	M ³	
A	5	5	3	<i>Melomys</i> (120)
B	5	4	3	<i>Rattus</i> (90)
C	5	3		<i>Hydromys</i> (5), <i>Xeromys</i> (1)
D	4	4	3	<i>Uromys</i> (6), <i>Melomys</i> (180), <i>Pogonomys</i> (6)
E	4	3	2	<i>Conilurus</i> (2)
F	3	3	3	<i>Mus</i> (3), <i>Pseudomys</i> (18), <i>Mesembriomys</i> (2), <i>Zyzomys</i> (2), <i>Thetomys</i> (2), <i>Pogonomelomys</i> (6)
G	3	3	3*	<i>Gyomys</i> (2)
H	3	3	2	<i>Leggadina</i> (5), <i>Notomys</i> (7), (<i>Leporillus</i> †)

*arrangement different from Pattern F (cf. Plate 62 F a)

†after Jones (1922)

